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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/646,228	09/14/2000	Hideyoshi Horimai	107318	5554

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EXAMINER

LIU, MING HUN

ART UNIT PAPER NUMBER

2675

DATE MAILED: 01/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/646,228

Applicant(s)

HORIMAI, HIDEYOSHI

Examiner

Ming-Hun Liu

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 16, 26, 33, 34, 44 and 46-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 16, 26, 33, 34, 44, and 46-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: .

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of claims 1, 16, 26, 33, 34, 44, 46-50 in Paper No. 6 is acknowledged. The traversal is on the ground(s) that the claims and the embodiments are sufficiently related. This is not found persuasive because the applicant claims several different embodiments in the invention. The applicant's various embodiments teach distinct ways of bending, reflecting and deflecting light, a variety that causes a serious burden to the examiner.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 16, and 26 are rejected under 35 U.S.C. 102(e) as being unpatentable by US Patent 6,157,474 to Orr et al.

In reference to claim 1, Orr teaches a three-dimensional display created by a two-dimensional forming means. The two-dimensional image means has a plurality of controllable pixels (column 2, lines 31-34).

In reference to claim 16, Orr teaches that the image forming means and light deflecting means are combined to deflect the light coming from the two-dimensional image forming means.

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Both means are controlled so that images formation and deflection are in synchronous with the real time image from the two-dimensional image forming means (column 3, lines 4-7).

In reference to claim 26, Orr discloses the use of a hologram for the purpose of light deflection (column 3, 4-7).

4. Claims 44, 46-50 are rejected under 35 U.S.C. 102(b) as being unpatentable by US Patent 5,954,414 to Tsao.

In reference to claim 44, Tsao teaches a three-dimensional image display created by modulating two-dimensional images onto a display screen. The plurality of two-dimensional images is projected in directions different from each other thus creating the three-dimensional image (column 3, lines 30-39 and column 4, lines 24-26).

In reference to claim 46, it can be seen from Tsao's figure 3g-3j that the light from the images formed on to the screen are reflected in different directions in relation to their incident direction.

***Claim Rejections - 35 USC § 103***

5. Claims 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Orr in view of US Patent 6,421,174 to Ooshima et al.

In reference to claim 33 and 34, Orr teaches a display device that similar to the one being claimed. However, Orr does not explicitly teach the use of a curved cylindrical surface to form the image on.

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Ooshima on the other hand does teach the use of a cylindrical light modulator screen (figures 5a and 5b).

It would have been simple to modify Orr's invention by projecting the two-dimensional images onto a curved screen.

It would have to one skilled in the art to implement Ooshima's method of using cylindrical hologram surface to achieve a three-dimensional display that has a plurality of stereographic viewpoints so that several observers can simultaneously observe the three-dimensional image (column 1, lines 62-65).

6. Claims 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ooshima

In reference to claims 47-50, the imaging system has an image delivery mechanism that synchronizes the image and projection timing with rotating of the screen to accurately display the image (column 2, line 63- column 3, line 10).

Ooshima however does not explicitly state the requirement of recording image position and synchronization data, however such a limitation is obvious to one skilled in the art.

A computer could be added to the Ooshima's invention to help regulate the image projection and image synchronization data.

One skilled in the art understands that in order to successfully create the three-dimensional image, a computer/memory device would have to be used to facilitate reproducibility and manipulability of the images.

*Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6,590,680 to Orr: Holographic deflection in 3-D image generation.

US Patent 6,650,396 to Li: Cylindrical screen with synchronization drivers

US Patent 6,600,600 to Chen: Reflective curved surface for 3-D images.

US Patent 5,132,839 to Travis: Control system to synch image display and hologram


US Patent 4,429,946 to Haines: Cylindrical holographic screen

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ming-Hun Liu whose telephone number is 703-305-8488. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras can be reached on 703-305-9720. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Ming-Hun Liu

  
DENNIS-DOON CHOW  
PRIMARY EXAMINER